

REMARKS

Applicants have thoroughly considered the Examiner's remarks and the application has been amended to more clearly define the invention. Claims 1-38 are presented in the application for further examination. Claims 1-6, 8, 10, 12, 15-19 and 21-32 have been amended by this Amendment B. Claims 39-44 are canceled. Reconsideration of the application claims as amended and in view of the following remarks is respectfully requested. The following remarks will follow the sequence of the Office action. The Arabic numerals beginning each paragraph correspond to the numbered paragraphs of the Office action.

Claim Rejections - 35 USC §101

1. Claims 23-26 and 28-32 have been amended to delete the reference to P so that the objection to these claims should be withdrawn.
2. Claim 27 have been amended to provide antecedent basis for pixel so that the objection to claims 28-32 should be withdrawn.
3. Claims 39-44 have been canceled as duplicates.
4. Claim 21 has been amended to recite a tangible computer readable storage medium so that the rejection of claims 21-26 under 35 USC §101 should be withdrawn.
5. Claim 27 has been amended to recite a method of modifying pixel values of a digital video image so that the rejection of this claim based on 35 USC §101 should be withdrawn.

Claim Rejections - 35 USC §102

- 1.-2. Claims 1, 15-19 and 27 stand rejected under 35 USC §102(e) as being anticipated by Herf (6925210). The Examiner argues that:

blurred value. Herf discloses in lines 33-50 of column 1 the use of a box filter to blur a digital image pixel by pixel. In this method the box filter is used to take the average of the selected P pixels surrounding the center (particular) pixel or what is chosen to be the center pixel and then input this average into the particular pixel. This is done for each desired pixel in the digital image and results in a blurred version of the original image.

Independent claims 1, 15 and 27 have been amended to recite that "the selected pixels are different from the particular pixel" in combination with "determining a blurred value as a function of only the values of the selected pixels." This combination is not taught by Herf, which suggests a box filter. In general, a box filter includes the selected pixel in the blurred value calculation. See, for example the following references regarding box filters, copies of which are attached:

1. <http://www-csl.csres.utexas.edu/users/billmark/teach/cs384g-05-fall/projects/impressionist/imageproc.html>
2. <http://homepages.inf.ed.ac.uk/rbf/HIPR2/mean.htm>
3. [http://wiki.blender.org/index.php/Manual/Oversampling_\(Antialiasing\)](http://wiki.blender.org/index.php/Manual/Oversampling_(Antialiasing))

Further, Herf teaches away from the invention as column 1, lines 33-50:

For example, to blur an image using the simplest blur technique, a box filter, a range of pixels is averaged and the result is then written to the center pixel. Performing this operation for every pixel in an image results in a blurred image. In graphics hardware, a conventional implementation of a box filter renders the original image translated multiple times, and then averages all of the translated images together to produce a resulting, blurred image. These repeated operations traditionally use "accumulation buffer" hardware to perform the averaging. Accumulation buffers can be used to implement full-screen anti-aliasing techniques, soft shadows, and motion blur effects. In the context of image blurring, an accumulation buffer generally requires time proportional to the square of the filter radius, using one accumulation operation per value in the blur kernel. As a result, large blurs are too expensive to implement directly using accumulation buffer techniques, as a single frame may contain many thousands of accumulation operations.

Furthermore, Herf is consistent with the attached references and indicates that the box filter is a range of pixels which averaged. The range necessarily includes the "center pixel," which according to Herf, is the pixel which is replaced after averaging. Thus, Herf teaches away from amended claims 1, 15 and 27 and the rejection based on §102 should be withdrawn.

Claims 16-19 are patentable based on their dependency from claim 15. In addition, claims 16-19 have been amended to further limit claim 15 so that the rejection based on §102 should be withdrawn.

Claim Rejections - 35 USC §103

3.-5. Claims 1-13, 21-25, 27-31, 33-37 and 39-43 stand rejected under 35 USC §103(a) as being unpatentable over Herf in view of Koike (5408338). The Examiner cites Kioke as teaching selecting the number of pixels:

based on the average of a plurality of pixels. However, Herf does not disclose a particular number of pixels used in this operation. Koike discloses in Figure 2, lines 20-44 of column 1, and in lines 1-51 of column 4 an image processing unit and method in which smoothing is performed. The smoothing operation as described by Koike is an evenly weighted average that is identical to the blur operation by this application. This smoothing (blurring) involves selecting a particular pixel and $P \approx 2^N$ (with $N \approx 3$ or 4) other pixels and blurring the particular pixel based on the average of the pixels. However, Koike does not exclude the particular pixel from the

However, the Examiner admits that Koike does not exclude the particular pixel:

on the average of the pixels. However, Koike does not exclude the particular pixel from the calculation of the blurred value as can be seen in the equation provided and instead excludes pixel H. The reason a pixel is excluded from the calculation is that there is a benefit in digitally processing in powers of 2 and thus operating with 8 pixels is desired. Therefore arbitrarily removing a pixel such as pixel H is a benefit and the choice of H is merely an example used to illustrate Koike's process. It would have been obvious to one of ordinary skill in the art to exclude the particular pixel X or any of the other particular pixels to achieve the desired number of pixels in the selected set as shown by Koike to achieve the benefits of digitally processing powers of 2. Furthermore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Koike with Herf since they both relate to the smoothing (blurring) of digital images to achieve improved computational efficiency.

The Examiner argues that it would have been obvious to exclude the particular pixel. However, Herf teaches to the contrary, as noted above. Therefore, the combination of Herf and Koike are consistent with each other and teach that the particular pixel is included.

Applicants note that the Examiner has not cited any art which teaches excluding the particular pixel, as recited by the amended claims. "[T]he question is whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination." *Lindemann MaschinenFabrick GMBH v. American Hoist and Derrick Company*, 730 F.2d 1452, 1462; 221 U.S.P.Q. 481, 488 (Fed. Cir. 1984). As has been shown, the non-analogous teachings of the prior art relate to including the particular pixel in the combination. Therefore, nothing in the cited references suggest their combination to exclude the particular pixel. Indeed, the Examiner failed to cite any basis whatsoever for combining these references. In fact, the Examiner's rejection provides a textbook example of impermissible hindsight analysis -- the Examiner used the invention as defined by the claims as a guide in order to reject the claims. See *In re Oetiker*, 977 F.2d at 1447; 24 U.S.P.Q.2d at 1446 ("There must be some reason, suggestion, or motivation found in the prior art whereby a person of ordinary skill in the field of the invention would make the combination. That knowledge can not come from the applicant's invention itself.").

Thus, Applicants submit that the claims are patentable and the rejection of claims 1-7, 21-25, 27-31, and 33-37 should be withdrawn because each independent claim recites that "the selected pixels are **different** from the particular pixel" in combination with "determining a blurred value as a function of **only** the values of the selected pixels."

Regarding the rejection of claim 8 and claims 9-13 depending from claim 8, claim 8 has been amended to be in independent form. With regard to claim 8, the Examiner admits that Herf and Koike are deficient:

Koike and Herf do not disclose using these different sizes of filters or the number of selected pixels used to compute the blurred or smoothed value, but it is known to one of ordinary skill in the art that varying these values will affect the images in certain ways. It is known to one of ordinary skill in the art that the value P (the number of selected pixels), which is directly related to N, affects the blurred (or smoothed) value by averaging it over range of pixels. For example if

Applicants submit that the calculating and replacing as recited by claim 8 was not known within the context of pixel blurring at the time of the invention. Thus, Applicants traverse the Examiner's suggestion that such calculating within the context of pixel blurring would be common knowledge and request that the Examiner cite a reference to support the rejection or allow claims 8-13.

Thus, claims 1-13, 21-25, 27-31, and 33-37 are patentable and the rejection should be withdrawn. Claims 39-43 have been canceled.

6. Claims 1, 14, 15, 21, 26, 27, 32, 33, 38, 39 and 44 stand rejected as being unpatentable over Herf in view of Koike and Kawano (6480302). The Examiner cites Kawano to teach grayscale processing. However, Kawano is deficient for the same reasons as Herf and Koike. In particular, Kawano generally teaches processing of all pixels and does not address the recital that "the selected pixels are different from the particular pixel" in combination with "determining a blurred value as a function of only the values of the selected pixels."

Applicants submit that claims 1, 14, 15, 21, 26, 27, 32, 33, and 38 are patentable. Claims 39 and 44 have been canceled.

In view of the foregoing, favorable reconsideration and allowance of all claims is requested. The fact that Applicants may not have specifically traversed any particular assertion by the Office should not be construed as indicating Applicants' agreement therewith.

Applicants wish to expedite prosecution of this application. If the Examiner deems the application to not be in condition for allowance, the Examiner is invited and encouraged to telephone the undersigned to discuss making an Examiner's amendment to place the application in condition for allowance.

It is felt that a full and complete response has been made to the Office action and, as such, places the application in condition for allowance. Such allowance is hereby respectfully requested. If the Examiner feels, for any reason, that a personal interview will expedite the prosecution of this application, he is invited to telephone the undersigned.

Applicants do not believe that a fee is due in connection with this response. If, however, the Commissioner determines that a fee is due, he is authorized to charge Deposit Account No. 19-1345.

Respectfully submitted,

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